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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP  
1300 I STREET, NW  
WASHINGTON, DC 20005

EXAMINER
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LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/05/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/472,150

Applicant(s)

HASEGAWA ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2003 / 19 June 2003
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-21 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-26 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 19, 2003 has been entered.

### ***Response to Amendment***

2. Applicant's amendment submitted on May 23, 2003 has been received and carefully considered. Claim 27 has been cancelled. Claims 1-14 and 22-25 are withdrawn from consideration, being drawn to a non-elected invention. Claims 1-26 remain active.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 26 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, as the language of the claim is directed to a method limitation which renders the claim vague and indefinite as it is unclear as to what structural elements the applicants are attempting to recite, since "the pressure holding fluid" is not an element of the apparatus.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

4. Claims 15-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McBrayer, Jr. et al. (U.S. 5,552,039) in view of Matovich (U.S. 4,199,545).

Regarding claim 15, McBrayer, Jr. et al. disclose an apparatus **10** comprising:

- a pressure reactor **12**;
- an exterior vessel **22** in which the pressure reactor **12** is installed through a gap **24**, wherein the exterior vessel **22** is isolated from a treatment object and a reaction medium fed to pressure reactor **12**;
- means for feeding a treatment object **30** or **230** into the pressure reactor **12**;
- means for feeding a reaction medium **241** into the pressure reactor **12** (column 13, lines 40-51); and
- means for controlling pressure **38, 40, 42, 43, 44, 46, 48** (column 9, lines 25-29) within the gap **24** between the exterior vessel **22** and the pressure reactor **12** to be higher than that within the pressure reactor **12** (column 4, lines 48-50).

McBrayer, Jr. et al. are silent as to the means **30** or **230** comprising a first solid reservoir, a second reservoir connected to the first solid reservoir through a first connecting pipe, and the second reservoir connected to the pressure reactor **12** through a second connecting pipe.

Matovich (FIG. 8A, 8B, 9; column 11, line 63 to column 12, line 33) teaches a solid reactant feed system **238** for use in combination with a reactor (defined by inlet assembly **200/200a**,

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electrode assembly **300**, main assembly **400**, and post-reaction treatment assembly **500**; column 6, lines 12-17). The system comprises a first solid reservoir (supply bin **240**), and a second reservoir (hopper **244**) connected to the first solid reservoir **240** through a first connecting pipe (fine product output **243**), and the second reservoir **244** connected to the reactor through a second connecting pipe (housing **246**, outlet **250**). It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to provide the solid reactant feed system of Matovich for the means for feeding a treatment object including a solid waste in the apparatus of McBrayer, Jr. et al. because the solid reactant feed system provides a means for introducing solid reactants into the reactor while being sealed from the atmosphere, as taught by Matovich (column 12, lines 27-31).

Additionally, McBrayer, Jr. et al. disclose the apparatus relates to the treating of aqueous waste liquids (column 4, lines 12-14). Although McBrayer, Jr. et al. does not expressly state the use of a treatment object including a solid waste, the reference further discloses, “disadvantages of the conventional reactors include... increased plugging potential due to small diameters” (column 7, lines 22-29), and “[t]he present invention allows for the construction of relatively large diameter reactors... [providing the consequential advantage of] reduced plugging potential.” (column 7, lines 36-45). In particular, McBrayer, Jr. et al. cite an example of processing wastes containing dissolved inorganic solids (e.g. NaCl salt) that come out of solution as solid particles in supercritical water conditions. Due to the relatively large reaction chamber diameter, plugging potential in the reactor is reduced and it is possible to treat wastes which otherwise might results in unacceptably low operating utility due to plugging in the reactor. (column 8, lines 13-56). The apparatus of McBrayer, Jr. et al. is admittedly capable of processing

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a solid material, and hence capable of processing a treatment object including a solid waste. In any event, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 16, McBrayer, Jr. et al. disclose the means for controlling pressure within a gap **24** comprises a fluid feeder for feeding a pressure holding fluid into the gap **24** and a pressure controller **43** for controlling pressure of the pressure holding fluid (column 4, lines 48-67; column 9, lines 25-29; column 11, lines 14-34).

Regarding claim 17, McBrayer, Jr. et al. disclose a means for controlling temperature **470**, **570**, **670** of the exterior vessel **22** to be lower than that of pressure reactor **12** (column 14, line 24 to column 15, line 9).

Regarding claim 18, McBrayer, Jr. et al. disclose the exterior vessel **22** comprises a trunk portion **22** and a cover portion **28** that opens and shuts, and the pressure reactor **12** is fixed to be removable to the exterior vessel **22** (column 5, lines 14-16; column 9, lines 5-10).

Regarding claim 19, McBrayer, Jr. et al. disclose pressure reactor **12** is formed of at least one of stainless steel or noble metal (i.e., Ni, Zr, Ti, Au, Pt; column 9, lines 52-63; column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber wall will depend on the corrosive conditions experienced with a particular waste feed.

Regarding claim 20, McBrayer, Jr. et al. disclose an inner surface **14** of the pressure reactor **12** is lined with at least one of stainless steel or noble metal (i.e. Ni, Zr, Ti, Au, Pt;

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column 9, lines 52-63; column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber lining will depend on the corrosive conditions experienced with a particular waste feed.

Regarding claim 21, McBrayer, Jr. et al. disclose that an inner surface **14** of the pressure reactor **12** is, for example, coated with ceramic material (column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber coating will depend on the corrosive conditions experience with a particular waste feed.

5. Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over McBrayer, Jr. et al. (U.S. 5,552,039) in view of Matovich (U.S. 4,199,545), as applied to claims 15 and 16 above, and further in view of Suzuki et al. (JP 09-085075).

McBrayer, Jr. et al. disclose the pressure holding fluid may comprise an inert fluid (i.e., nitrogen, helium, argon) that does not react with the elements present in the annulus under operating conditions (column 11, lines 30-34), but are silent as to whether the pressure holding fluid may comprise water. In any event, the apparatus of McBrayer, Jr. et al. structurally meets the claim, since the pressure holding fluid is not an element of the apparatus but a mere recitation of intended use. Furthermore, the use of a fluid such as water as the pressure holding fluid is known in the art, as evidenced by Suzuki et al. In particular, Suzuki et al. teach a high pressure reaction apparatus comprising a high-pressure reactor **2** and an exterior vessel **1** in which the high-pressure reactor **2** is installed, wherein a means for controlling pressure within a gap **B** between the exterior vessel **1** and the high-pressure reactor **2** is provided (FIG.; Abstract).

Suzuki et al. further teach that the means may comprise feeding a pressure medium, namely a gas or liquid such as water (Section [0015]). Therefore, it would have been an obvious design choice

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for one of ordinary skill in the art at the time the invention was made to select water for the pressure holding fluid in the apparatus of McBrayer, Jr. et al., on the basis of suitability for the intended use and absent showing any unexpected results.

### *Response to Arguments*

6. Applicant's arguments submitted on May 23, 2003 have been fully considered but they are not persuasive.

Regarding the rejection of claim 26 under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, applicants argue,

“Claim 16 recites, *inter alia*, “wherein the means for controlling pressure within the gap comprises a fluid feeder for feeding a pressure holding fluid into the gap and a pressure controller for controlling the pressure of the pressure holding fluid.” Claim 26 recites, “[t]he pressure treatment apparatus as set forth in claim 16, wherein the pressure holding fluid is water.” That is, claim 26 depends from and further limits “a pressure holding fluid,” recited in claim 16.” (page 5).

However, please note that the instantly claimed means for controlling pressure only comprises the recited structural elements of a fluid feeder and a pressure controller, and the recitation of a pressure holding fluid, preceded by “for” and underlined above, provides not further structural limitation to the means and merely indicates the intended use the of fluid feeder element. Thus, the claim remains vague and indefinite for the reasons set forth above.

Regarding the combination of the McBrayer, Jr. et al. reference with Matovich under 35 U.S.C. § 103(a), applicants assert,

“... the written description discusses an exemplary structure of “means for feeding a treatment object,” which includes crushing means for feeding solid waste to the first solid reservoir. Yet *Matovich* at best discloses sending waste from crusher 241 eventually to hopper 244, which the Examiner alleges corresponds to the second reservoir. That is, in one embodiment the “means for feeding a treatment object” comprising “a first solid reservoir” recited in claim 15 corresponds to the crushing means discussed in the specification of the pending application including first solid reservoir 101. At best, the Examiner could argue the solid reactant feed system 238 and hopper 244 of *Matovich* correspond to the “means for feeding a treatment object” and a “first solid reservoir,”



respectively, of claim 15. Even assuming, *arguendo*, the hopper 244 of *Matovich* corresponds to the first solid reservoir of the invention recited in claim 15, *Matovich* fails to disclose or suggest "a second solid reservoir, which is connected to the first solid reservoir through a first connecting pipe and connected to the pressure reactor through a second connecting pipe," as recited in claim 15." (page 8, second paragraph).

As stated in 35 U.S.C. § 112, sixth paragraph, a claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure described in the specification and equivalents thereof." Taking applicant's Embodiment 1, for example, the specification discloses the corresponding structure for the "means for feeding a treatment object" may be defined by feeding system 100, comprising the structural elements of a first feed pipe 105, a second feed pipe 106, a first solid reservoir 101 and a second solid reservoir 103 (FIG. 1; page 24, line 21 - page 25, line 1). The crushing means as stated by Applicants above is not an element of Embodiment 1. One having ordinary skill in the art at the time the invention was made would have considered the means for feeding a treatment object of *Matovich* to be substantially equivalent in structure and function to the means as claimed by applicants, with supply bin 240 substantially equivalent to the instantly claimed first reservoir, and hopper 24 substantially equivalent to the instantly claimed second reservoir. It is noted that the feature upon which applicant relies (i.e., the incorporation of the crushing means with the means for feeding a treatment object, disclosed as primary crusher 124 in Figure 8 of similar Embodiment 5) is not recited in the rejected claims, since the instant claims only call for a means for *feeding a treatment object*, and not a means for crushing the treatment object. In any event, assuming *arguendo* that the crushing means was recited in the claims, the reference of *Matovich* would still meet the claims, since one having ordinary skill in the art would have called sieve 242 the first reservoir, hopper 244 the second reservoir, and crusher 241, located upstream of sieve 242,

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the crushing means (FIG. 9; column 11, line 64 to column 12, line 34). Sieve **242** is inherently a reservoir, since although the element is provided for separation of coarse solids from fine solids, the sieve must inherently hold the separated solids (thus serving as a reservoir) before feeding the coarse and fine solids to their respective destinations.

Additionally,

“Applicants dispute that there is any motivation to combine McBrayer and Matovich. For example, Matovich includes a reactor tube made of a porous fabric of a fibrous, refractory material, and installed in a tubular pressure vessel, which is distinctly different from the structure and function of the pressure treatment apparatus disclosed in McBrayer.” (page 9, second paragraph).

However, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant case, the teaching to be gleaned from the Matovich reference is that the provision of the recited means for feeding a treatment object, comprising the dual reservoirs and connecting pipes, enables reactants to be fed to a pressure reactor while being sealed from the atmosphere, and the teaching is not the bodily incorporation of the specific pressure reactor of Matovich for the pressure reactor of McBrayer Jr., et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer A. Leung

September 3, 2003



**HIEN TRAN  
PRIMARY EXAMINER**